

88. A semiconductor device comprising:
a semiconductor element having protruding electrodes formed on a surface thereof, the protruding electrodes having a straight shape on a lateral surface thereof;
a conductive film covering a top surface of the protruding electrodes;
a first resin layer that is formed on the surface of the semiconductor element and seals the protruding electrodes except for ends thereon; and
a second resin layer provided so as to cover at least a back surface of the semiconductor element.

89. A semiconductor comprising:
a semiconductor element having protruding electrodes formed on a surface thereof, the protruding electrodes having a straight shape on a lateral surface thereof;
a conductive film covering a top surface of the protruding electrodes;
a resin layer which is formed on the surface of the semiconductor element and seals the protruding electrodes except for ends thereof; and
external connection protruding electrodes provided to the ends of the protruding electrodes exposed from the resin layer.

90. A semiconductor wafer on which semiconductor elements are provided, comprising:
a semiconductor wafer including a plurality of semiconductor elements having a surface on

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which protruding electrodes are formed, the protruding electrodes having a straight shape on a lateral surface thereof;

a conductive film covering a top surface of the protruding electrodes; and

a resin layer which is formed on the surface of the semiconductor elements and seals at least a lateral surface of the protruding electrodes.

91. A semiconductor device comprising:

a semiconductor element having a surface on which protruding electrodes are formed, the protruding electrodes having a straight shape on a lateral surface thereof;

a conductive film covering a top surface of the protruding electrodes; and

a resin layer which is formed on the surface of the semiconductor element and seals at least a lateral surface of the protruding electrodes,

wherein a lateral surface of the resin layer and a lateral surface of the semiconductor element have planes cut by a dicer.

92. A semiconductor device as claimed in 91, wherein the lateral surface of the resin layer and the lateral surface of the semiconductor element have a common plane.

93. A semiconductor device comprising:
a semiconductor element having a surface on which protruding electrodes are formed, the protruding electrodes having a straight shape on a lateral surface thereof;
a conductive film covering a top surface of the protruding electrodes; and
a resin layer which is formed on the surface on the semiconductor element and seals a lateral surface and a top of the protruding electrodes,
wherein the lateral surface of the resin layer and the lateral surface of the semiconductor element have planes cut by a dicer.

94. A semiconductor device comprising:
a plurality of electrode pads provided on a semiconductor substrate;
a plurality of protruding electrodes formed on the substrate, spaced apart from the electrode pads, the protruding electrodes having a straight shape on a lateral surface thereof;
a conductive film covering a top surface of the protruding electrodes;
a lead line connecting selectively between the electrode pads and the protruding electrodes;
and
a resin layer which is formed on the surface on the substrate and seals the electrode pads, the lead line and at least a lateral surface of the protruding electrodes,
wherein a lateral surface of the resin layer and a lateral surface of the substrate are cut by a dicer.

Amended

95. The semiconductor device as claimed in claim 94, where the protruding electrodes are arranged at an increased pitch than a pitch of the pads.

96. The semiconductor device as claimed in claim 91, wherein the resin layer is formed by disposing a film between the protruding electrodes and a mold, which thus contacts the sealing resin through the film.

97. A semiconductor device comprising:
a semiconductor element having a surface on which electrode pads connected to an internal part of the semiconductor element and protruding electrodes to be connected to an external part are formed, the protruding electrodes having a straight shape on a lateral surface thereof;
a conductive film covering a top surface of the protruding electrodes;
lead lines each connecting one of the electrode pads and one of the protruding electrodes so that the protruding electrodes and the internal part are connected through the lead lines;
and

a resin layer which is formed on the surface of the semiconductor element and seals at least a lateral surface of the protruding electrodes;

wherein the lead lines are located between the semiconductor element and the resin layer.